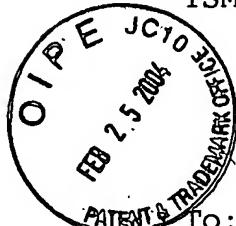


TSMC-01-1630



February 18, 2004

To: Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Fr: George O. Saile, Reg. No. 19,572
28 Davis Avenue
Poughkeepsie, N.Y. 12603

Subject: | Serial No. 10/723,237 11/26/03 |

Chih-Ta Wu et al.

A METHOD TO FORM A ROBUST TiCl₄
BASED CVD TiN FILM

INFORMATION DISCLOSURE STATEMENT

Enclosed is Form PTO-1449, Information Disclosure Citation
In An Application.

The following Patents and/or Publications are submitted to
comply with the duty of disclosure under CFR 1.97-1.99 and
37 CFR 1.56.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being
deposited with the United States Postal Service as first class
mail in an envelope addressed to: Commissioner for Patents,
P.O. Box 1450, Alexandria, VA 22313-1450, on February 23, 2004.

Stephen B. Ackerman, Reg.# 37761

Signature/Date

Steph B. Ackerman 2/23/04

U.S. Patent 6,297,147 to Yang et al., "Plasma Treatment for Ex-situ Contact Fill," discloses a method for removing oxygen from the surface of an oxidized metal layer prior to depositing a subsequent metal layer.

U.S. Patent 5,970,378 to Shue et al., "Multi-step Plasma Treatment Process for Forming Low Resistance Titanium Nitride Layer," discusses a method for forming a titanium nitride layer within an integrated circuit.

The following two U.S. Patents describe forming a multilayer TiN film comprised of a least two TiN layers on a TiN underlayer:

- 1) U.S. Patent 6,207,557 to Lee et al., "Method of Forming Multilayer Titanium Nitride Film by Multiple Step Chemical Vapor Deposition Process and Method of Manufacturing Semiconductor Device Using the Same."
- 2) U.S. Patent 6,291,342 to Lee et al., "Methods of Forming Titanium Nitride Composite Layers Using Composite Gases having Increasing TiCl₄ to NH₃ Ratios."

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U.S. Patent 6,140,223 to Kim et al., "Methods of Forming Contacts for Integrated Circuits Using Chemical Vapor Deposition and Physical Vapor Deposition," discusses a TiN glue layer formed in a contact hole in three steps.

Sincerely,

A handwritten signature in black ink, appearing to read "S. B. ACKERMAN".

Stephen B. Ackerman,
Reg. No. 37761

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.